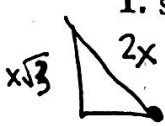
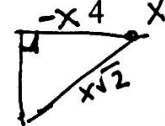
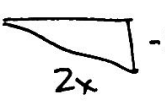
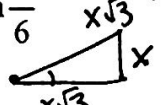


Algebra 2C - Trigonometry ReviewObjective #3

Use your unit circle and special right triangles to find the exact values for the indicated functions.

1. $\sin \frac{2\pi}{3} = \frac{\sqrt{3}}{2}$  2. $\cos \frac{5\pi}{4} = -\frac{\sqrt{2}}{2}$  3. $\cos \frac{\pi}{2} = 0$ 4. $\tan \frac{\pi}{2}$ undefined

5. $\sin \frac{11\pi}{6} = -\frac{1}{2}$  6. $\tan \frac{\pi}{6} = \frac{\sqrt{3}}{3}$  7. $\sin \pi = 0$ 8. $\cos \pi = -1$

9. What is the sign of the values for the sine function in each quadrant?

I: + II: + III: - IV: -

10. What is the sign of the values for the cosine function in each quadrant?

I: + II: - III: - IV: +

11. What is the sign of the values for the tangent function in each quadrant?

I: + II: - III: + IV: -

Objective #4

Convert the following from radians to degrees or from degrees to radians.

$\pi \text{ rad} = 180^\circ$

1. 280° $280^\circ \times \frac{\pi}{180^\circ} = \frac{14\pi}{9}$ 2. -135° $-135^\circ \times \frac{\pi}{180} = -\frac{3\pi}{4}$ 3. $\frac{7\pi}{8}$ radians $\frac{7\pi}{8} \cdot \frac{180}{\pi} = 157.5^\circ$ 4. $-\frac{12\pi}{7}$ radians $-\frac{12\pi}{7} \cdot \frac{180}{\pi} \approx -308.6^\circ$

Objective #5

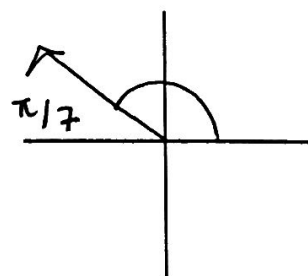
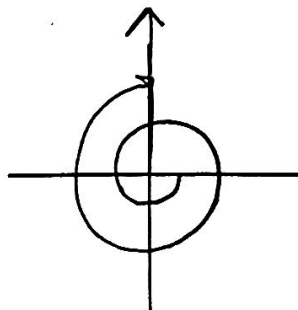
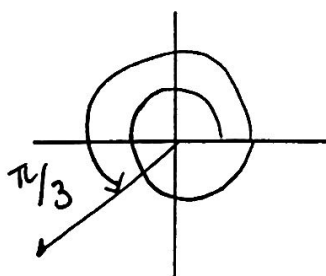
Write two equivalent radian measures for each of the following. One of them must be NEGATIVE.

1. $\frac{\pi}{8}$ $\pm \frac{16\pi}{8}$ $\frac{17\pi}{8}, -\frac{15\pi}{8}$ 2. $-\frac{3\pi}{5}$ $\pm \frac{10\pi}{5}$ $\frac{7\pi}{5}, -\frac{13\pi}{5}$ 3. -200° $\pm 360^\circ$ $160^\circ, -560^\circ$

Objective #6

Draw each angle given

1. $\frac{10\pi}{3}$ 1 cm 1.5 2 cm $\frac{6\pi}{3}$ $\frac{9\pi}{3}$ $\frac{12\pi}{3}$ 2. $-\frac{7\pi}{2}$ 3. $\frac{6\pi}{7}$



Objective #10.11

Give the value of each of the six trigonometric functions for angle θ when $AC=15$ and $BC=9$

$$\sin \theta = \frac{9}{15} = \frac{3}{5}$$

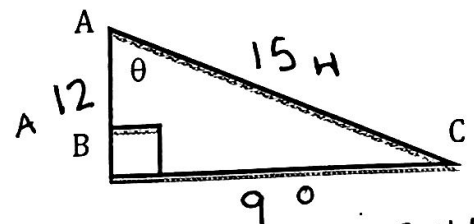
$$\cos \theta = \frac{12}{15} = \frac{4}{5}$$

$$\tan \theta = \frac{9}{12} = \frac{3}{4}$$

$$\csc \theta = \frac{5}{3}$$

$$\sec \theta = \frac{5}{4}$$

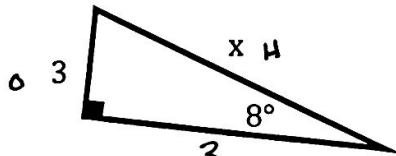
$$\cot \theta = \frac{4}{3}$$



$9^2 + AB^2 = 15^2$
 $81 + AB^2 = 225$
scaled up
 $\times 3$
ac $3 \times 4 \times 5 \Delta$

Objective #12

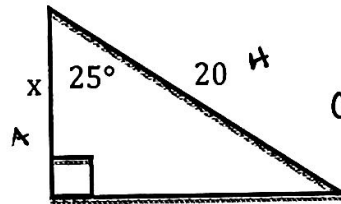
1.



$$\sin 8^\circ = \frac{3}{x}$$

$$x = 3 / \sin 8^\circ \approx$$

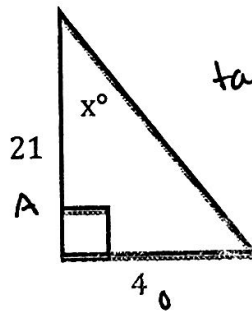
2.



$$\cos 25^\circ = \frac{x}{20}$$

$$x = 20 \cdot \cos 25^\circ \approx 18.1$$

Objective #14



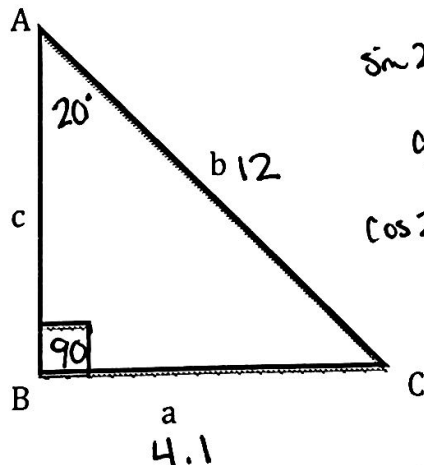
$$\tan x = \frac{4}{21}$$

$$x = \tan^{-1} \left(\frac{4}{21} \right) \approx$$

Objective #15

Solve triangle ABC by using the measurements $\angle ABC = 90^\circ$, $\angle BAC = 20^\circ$, and $b = 12$.

* Note: there is more than one way to solve this!



$$\sin 20^\circ = \frac{a}{12}$$

$$a = 12 \cdot \sin 20^\circ \approx 4.1$$

$$\cos 20^\circ = \frac{c}{12}$$

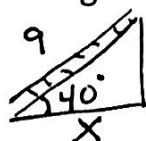
$$c = 12 \cdot \cos 20^\circ \approx 11.3$$

$$90^\circ - 20^\circ = 70^\circ = C$$

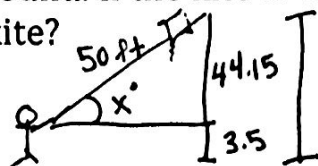
Objective #16

1. A 9 meter long ladder rests against a wall at an angle of 40° with the ground. How far is the foot of the ladder from the wall?

$$\cos 40 = \frac{x}{9} \quad x = 9 \cdot \cos 40 \approx \underline{6.9 \text{ meters}}$$



2. Sally is flying a kite on a 50-foot string. She is holding the end of the string 3.5 feet off the ground. If the kite is 47.65 feet of the ground, what is the angle of elevation of the kite?



$$x = \sin^{-1} \left(\frac{44.15}{50} \right) \approx$$

Objective #17.18

Give the period and amplitude for each of the functions given.

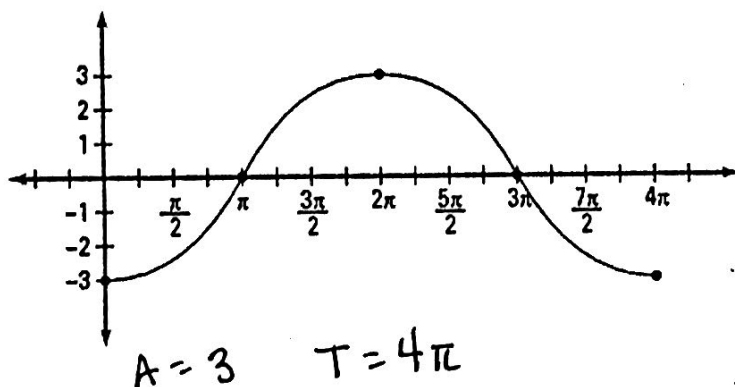
1. $3 \sin \frac{1}{2}x$
 $A = 3 \quad T = 4\pi$

2. $-5 \cos \pi x$
 $A = 5 \quad T = 2$

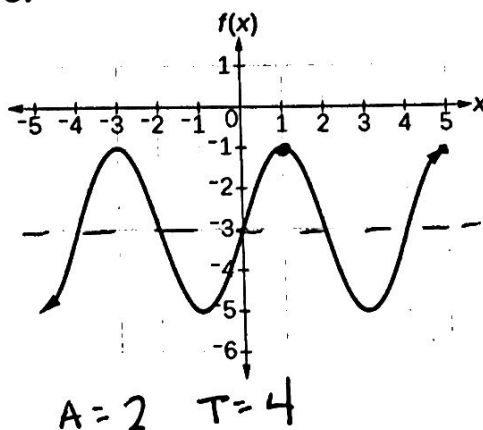
3. $\sin 3x$
 $A = 1 \quad T = \frac{2\pi}{3}$

4. $\frac{1}{3} \cos 2x$
 $A = \frac{1}{3} \quad T = \pi$

5.



6.

Objective #21

Give the vertical shift and the equation of the midline for each function given.

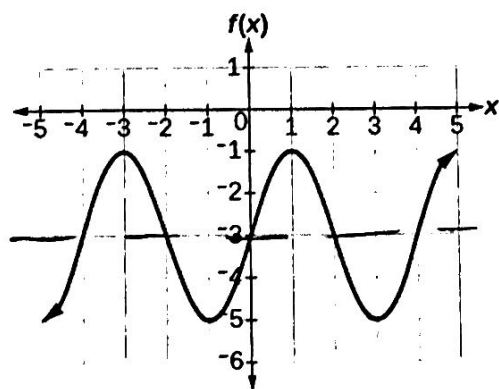
1. $f(x) = \sin \frac{1}{2}x + 4$ $y = 4$

2. $f(x) = -5 \cos \pi x - 2$
 down 2, $y = -2$

3. $f(x) = \sin 3x$

No shift
 $y = 0$ (x-axis)

4.



down 3
 $y = -3$

Objective #22

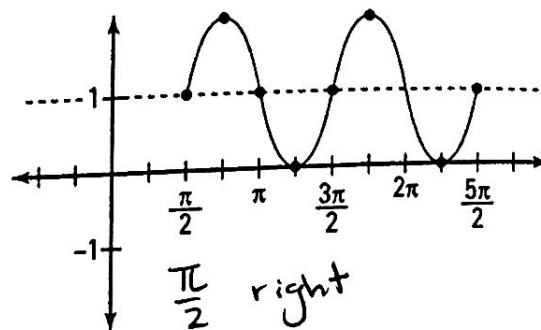
Give the phase shift for each function given.

1. $f(x) = \sin(x - \pi) + 4$ 2. $f(x) = -5\cos(x + \frac{\pi}{2})$

π to the right

$\frac{\pi}{2}$ left

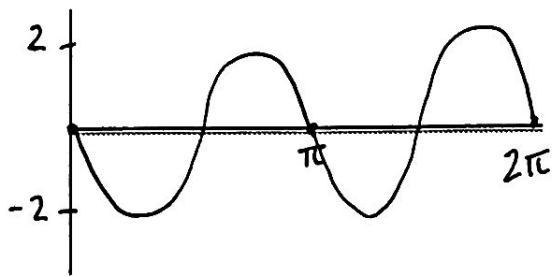
3.



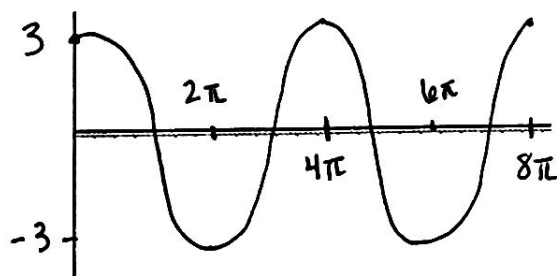
Objective #24

Graph each of the following. *Be sure to mark the y-axis and x-axis (in radians)!

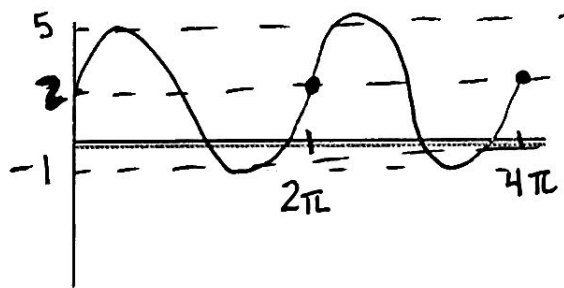
1. $f(x) = -2\sin(2x)$ $A = 2$
 $T = \frac{2\pi}{2} = \pi$



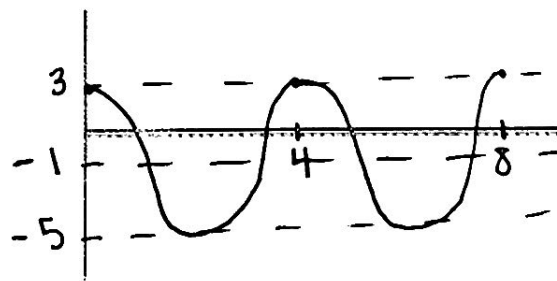
2. $f(x) = 3\cos(\frac{1}{2}x)$ $A = 3$
 $T = \frac{2\pi}{\frac{1}{2}} = 4\pi$



3. $f(x) = 3\sin(x) + 2$ $A = 3$ $T = 2\pi$
 Midline $y = 2$



4. $f(x) = 4\cos(\frac{\pi}{2}x) - 1$ $A = 4$ $T = \frac{2\pi}{\frac{\pi}{2}} = 2\pi \cdot \frac{2}{1} = 4$
 Midline $y = -1$



Objective #25

Give the equation for each graph shown.

1. $f(x) = 2\sin(\frac{\pi}{2}x) - 3$ 2. $f(x) = -3\cos 2x$

3. $f(x) = 5\cos x$

